

ABSTRACT OF THE DISCLOSURE

A plating bath for electroplating copper on a microelectronic workpiece in a through-mask plating application at a rate of at least 2 $\mu\text{m}/\text{min}$ where the bath includes: (a) 50-85 g/L of Cu^{2+} ; (b) 50-100 g/L of H_2SO_4 ; (c) 30-150 ppm of Cl^- ; (d) a
5 brightener; (e) a wetting agent; (f) optionally a leveler; and (g) water. A process for electroplating copper on a microelectronic workpiece in a through-mask plating application at a rate of at least 2 $\mu\text{m}/\text{min}$ where the process includes the steps of: (a) providing the plating bath described above; (b) providing a workpiece which has one or more through-mask openings having a conductive layer at the bottom of the openings;
10 (c) contacting the conductive layer with the plating bath; and (d) providing electroplating power between the conductive layer and an anode disposed in electrical contact with the bath, whereby copper is deposited onto the conductive layer at a rate of at least 2 $\mu\text{m}/\text{min}$.

JMS:jas/skg

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